

REMARKS

Claims 1-4, 7-9, 11, 17, 19, 20 and 22 are pending in the application. Presently, claims 5, 6, 10, 12-16, 18, 23 and 24 stand withdrawn pursuant to the election requirement. Applicants gratefully acknowledge the indicated allowability of claims 7-9, 11, 19 and 20. As these claims depend from base claims Applicants submit to be allowable as noted below, these claims have not been rewritten into independent form at this time. Reexamination and reconsideration of the application is respectfully requested.

Regarding the priority statement set forth in point 2 of the Office Action, Applicants respectfully submit certified copies were properly submitted on July 7, 2004. A copy of Applicants' claim for priority and the cover sheets of the priority documents are attached hereto. Applicants point out that the USPTO acknowledged receipt of the priority documents in the Office Action of December 8, 2004.

Regarding the Information Disclosure Statement discussed in paragraph 3 of the Office Action, Applicants point out that the WABCO letter was explained in the concise explanation of non-English language documents portion of the Information Disclosure Statement of May 3, 2005 as being an opposition letter.

Regarding the drawing objections, Applicants submit herewith copies of the replacement drawing sheets submitted in reply to the Office Action of December 28, 2004. Applicants do not find any reference numerals cut-off as alleged in the Office Action. Additionally, Applicants point out that these replacement drawings do include reference numerals for the "plunger 74" and

“spring 84”, as well as the “lines 83 and 84”. These can be found in Figures 1 and 2.

Regarding the objection to the specification, Applicants point out that an Abstract on a separate sheet was submitted. Additionally, in response to a USPTO request by a Mr. Person, Applicants faxed a copy of the Abstract on June 14, 2005. A further copy is submitted herewith. However, in view of the apparent disarray contained in the USPTO file, it is respectfully requested that the USPTO carefully review the file and, if necessary, request that the Applicants assist the office in placing the file into correct form.

Regarding the objection to claim 12, Applicants have amended claim 12 per the Examiner’s suggestion.

In the Office Action, claims 1-4 and 21-22 were rejected as being anticipated by ANGERFORS (WO 97/20153). Moreover, claims 1, 17 and 21 were rejected as obvious over KURICHH et al. (US 3,926,094) in view of ANGERFORS. In view of the following remarks, Applicants respectfully traverse this rejection.

Applicants’ independent claim 1 recites a spring-loaded cylinder for generating braking forces for an emergency and parking brake effect. It includes a cylinder housing, a piston arranged in the housing, a release screw operable to move the piston, a primary chamber arranged in the cylinder, and at least one electrical contact switch provided between a release screw and the piston. The electrical contact switch detects a position of the piston in the cylinder housing.

In contrast, the ANGERFORS reference is directed toward providing an external visual indication of whether the parking brake has been mechanically released and thus deactivated. The visual indicator control includes a release screw 1 with a bore in which bar 11, having an indication piston 12 at its one end and a contact member 8 at its other end, is movable. The indication piston is marked with a warning color. In the normal parking braking position, the contact member 8 contacts piston 4, thus, the indication piston is lowered into recess 57 and is not visible (see Fig. 1). During a mechanical release, the turning of the release screw 1 results in a displacement of the contact member 8 from the piston 4, so that the indication piston 12 protrudes from the recess 57 via spring pressure (see Fig. 2).

ANGERFORS, thus teaches away from Applicants' invention by utilizing a mechanical visual indicator, wherein the visual indication can only be seen when directly positioned in front of the spring loaded cylinder. Otherwise, it is not possible to get information about the condition of the parking brake. As utility vehicles, in general, utilize several parking brake cylinders, there is a possibility that one or more protruding pistons are overlooked, indicating that respective brake cylinders have been mechanically released. But, it is very important for a driver or a service technician to recognize the respective operating condition, as a mechanical release of the parking brake results in a deactivation of the brake and renders the parking brake ineffective as the parking brake forces of the vehicle are lowered.

Accordingly, Applicants' invention provides a contact switch. Such a contact switch can electrically signal into a driver's cabin for indicating, for example, via a warning light, a mechanical release condition of one or more parking brakes. Advantageously, such an indication can be provided during operation of the vehicle itself. In order to clarify Applicants' invention, claims 1 and 21 have been amended to specifically recite the "electrical contact switch".

Advantageously, beyond actuating a warning light, the contact switch signal may be used for control purposes in a brake system. For example, the electrical signal triggered when the release position of the spring-loaded cylinder is reached may be used for controlling a relay valve connected in front of the spring-loaded cylinder in the parking brake system. In conventional systems, spring-loaded cylinders are pressurized with the full available operating pressure for releasing the parking brake, which operating pressure is normally 35% to 50% above the release pressure. The suggested switching-off of the relay valve is to occur when the release position of the spring-loaded piston has been reached. For this purpose, a relay valve has to be present, which is either directly controlled electrically or pneumatically via electrically switched solenoid valves. Utilizing the electrical signal of the electrical contact switch, the relay valve is controlled such that a further pressure build-up in the spring-loaded cylinder will not occur. As a result, on the one hand, energy is saved for generating the additional pressurized air volume at the full operating pressure, which air volume is required for raising the pressure in the spring-loaded cylinder from the release pressure to the full operating pressure. On the other

hand, in general the air consumption of the spring-loaded cylinders is reduced by the described volume during each actuation. Since, in accordance with legal requirements in various countries, the air reservoir of the spring-loaded brake system must be dimensioned as a defined function of the required compressed-air volume of the parking brake system, this advantage of the present invention permits a reduction in size, cost and weight of the air reservoir with an accompanying space gain.

Still further, another advantage of the control function of an electrical contact switch is the decreased response time of the parking brake because bleeding only has to still take place starting from the release pressure and, no longer, starting from the full operating pressure level. This advantageously eliminates the time for reducing the pressure difference, which is advantageous particularly in driving situations which require a fast response of the parking brake. This occurs, for example, when stopping on a hill during stop-and-go driving or during an emergency braking via the emergency brake.

In view of the foregoing, Applicants respectfully submit independent claims 1 and 21 are patentable over ANGERFORS.

Regarding the KURICHH reference, hereto KURICHH lacks any teaching of an indication system for a mechanical release of parking brake cylinders. As recognized by the Examiner, KURICHH fails to teach the use of any contact switch, let alone Applicants' claimed electrical contact switch. Further, as ANGERFORS does not remedy this deficiency in KURICHH as discussed in

detail above, Applicants respectfully submit independent claims 1 and 21 are patentable over KURICHH in view of ANGERFORS.

In view of the foregoing, Applicants submit independent claims 1 and 21 are patentable over the cited prior art. Further, claims 2-20 and 22-24 depend from these claims and should also be found patentable and in condition for allowance. An early notice to that effect is solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #037068.53199US).

Respectfully submitted,

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